claim(s) by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

For purposes of example and without limitation, certain example embodiments of this invention relate to a semiconductor laser device including multiple laser resonators. One laser resonator may emit light at a first wavelength, and another resonator may emit light at a second wavelength. In order to emit the different wavelengths, the different laser resonators have active layers (i.e., light emitting layers) of different materials. In certain embodiments, the active layers of the different resonators have different Group V elements (e.g., P, As, Sb, N) (page 7, lines 11-19; and page 8, lines 3-24). For example, in the Fig. 1 embodiment, the active layer 113 of one resonator is of AlGaAs, whereas the active layer 122 of the other resonator is of GaInP (note the different Group V elements As and P). In certain example embodiments, *one of the laser resonators may be located in a groove (see active laser layer 122 in Fig. 1), whereas the other laser resonator is not located in the groove (see active laser layer 113 in Fig. 1).* Moreover, a high resistance region (e.g., 141) may be provided between the resonators in order to electrically isolate the resonators (page 9, lines 7-14; page 10, lines 6-19; and page 16, lines 3-6). In the Fig. 1 embodiment, for example, the *high resistance region 141 may be formed by implanting Ga ions and/or protons into the sidewall of the groove 160* (page 16, lines 3-6). In certain embodiments, a current path can be formed in the high resistance region via impurity diffusion 142 (page 10, lines 15-19; and page 16, lines 8-12).

Claim 1

Claim 1 stands rejected under 35 U.S.C. Section 102(b) as being allegedly anticipated by Paoli. This Section 102(b) rejection is respectfully traversed for at least the following reasons.

Claim 1 as amended requires " first and second semiconductor laser resonators having different light emitting active layers of materials different from each other . . . . said first semiconductor laser resonator being located in a groove including a base and sidewalls, and said second semiconductor laser resonator not being located in said groove; and a high-resistance region in a sidewall of said groove which is provided between the semiconductor laser resonators, said high-resistance region having sufficient resistance to electrically isolate the first and second semiconductor laser resonators from one another." For example, and without limitation, Fig. 1 of the instant application illustrates a first semiconductor laser resonator 122 being located in a groove 160 including a base and sidewalls, and the second semiconductor laser resonator 113 not being located in the groove 160. Furthermore, Fig. 1 illustrates a high-resistance region 141 in a sidewall of groove 160 which is provided between the semiconductor laser resonators 113 and 122, the high-resistance region 141 having sufficient resistance to electrically isolate the first and second semiconductor laser resonators from one another (e.g., pg. 16, lines 3-6). The cited art fails to disclose or suggest the aforesaid underlined aspects of amended claim 1.

Paoli discloses a pair of laser resonators. However, Paoli clearly fails to disclose or suggest that one of the laser resonators is located in a groove while the other resonator is not. Furthermore, Paoli also fails to disclose or suggest a high-resistance region in a

sidewall of the groove which is provided between the semiconductor laser resonators as required by claim 1. Paoli clearly fails to disclose or suggest each of these two aspects of claim 1. Paoli is entirely unrelated to the invention of claim 1 in these respects.

Claim 16

Claim 16 requires "first and second semiconductor laser resonators provided on the same substrate, an active layer of the first laser resonator being of a different material than an active layer of the second laser resonator; the active layer of the second laser resonator being provided in a groove, whereas the active layer of the first laser resonator is not provided in a groove; and a high-resistance region provided at least along a sidewall of the groove in which the active layer of the second laser resonator is provided, the high-resistance region comprising ions and/or protons implanted into the sidewall of the groove." Again, Paoli fails to disclose or suggest the aforesaid aspects of claim 16.

Claims 18-19

Claims 18-19 require that each of said first and second semiconductor laser resonators is mounted on a heat sink having a concave portion defined in a surface thereof, each of the semiconductor laser resonators being mounted in a junction-down manner on the heat sink so that in each semiconductor laser resonator a cap layer thereof is located between the heat sink and an active layer thereof, and wherein a sidewall of said groove extends upward from the concave portion defined in the surface of the heat sink. For example, see Fig. 4 of the instant application, which illustrates heat sink 202, concave portion 205, cap layers 215 and 224, active layers 213 and 222, and a groove

250 having a sidewall which extends upwardly from the concave portion 205 defined in the surface of the heat sink.

The cited art fails to disclose or suggest the aforesaid underlined aspects of claims 18-19.

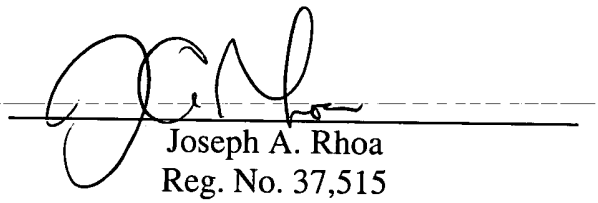
Claim 20

Claim 20 requires "an isolating groove defined between the first and second semiconductor laser resonators for electrically isolating the first and second semiconductor laser resonators from one another; each of said first and second semiconductor laser resonators being mounted on a heat sink having a concave portion defined in a surface thereof, and each of the semiconductor laser resonators being mounted in a junction-down manner on the heat sink so that in each semiconductor laser resonator a cap layer thereof is located between the heat sink and an active layer thereof, and so that the active layer of each semiconductor laser resonator is located between said substrate and the heat sink; and wherein at least a portion of said isolating groove extends upward from the concave portion defined in the surface of the heat sink." For example, see Fig. 7 which illustrates first and second semiconductor laser resonators 313, 322 mounted in a junction-down manner on a heat sink 302 having a concave portion 307 defined in a surface thereof, so that in each semiconductor laser resonator a cap layer 315, 324 thereof is located between the heat sink 302 and an active layer thereof (313 or 322), and wherein at least a portion of isolating groove 350 extends upward from the concave portion 307 defined in the surface of the heat sink 302. Again, the cited art fails to disclose or suggest the aforesaid underlined aspects of new claim 20.

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 
Joseph A. Rhoa
Reg. No. 37,515

JAR:caj
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please cancel claims 8 and 9.

1. (*Amended*) A semiconductor laser device comprising:

[a plurality of]first and second semiconductor laser resonators having different light emitting active layers of materials different from each other, the semiconductor laser resonators being provided on the same semiconductor substrate so that the light emitting active layers lie substantially in parallel to a main surface of the semiconductor substrate,

said first semiconductor laser resonator being located in a groove including a base and sidewalls, and said second semiconductor laser resonator not being located in said groove; and

a high-resistance region in a sidewall of said groove which is provided between the semiconductor laser resonators, said high-resistance region having sufficient resistance to electrically isolate the first and second semiconductor laser resonators from one another .

10. (*Amended*) The semiconductor laser device according to claim [9]1, wherein the high [-]resistivity [semiconductor layer]region comprises a high resistivity semiconductor layer [is]formed by implanting protons or gallium ions.

16. (*Amended*) A semiconductor laser device comprising:

first and second semiconductor laser resonators provided on the same [semiconductor]substrate, an active layer of the first laser resonator being of a different material than an active layer of the second laser resonator;

the active layer of the second laser resonator being provided in a groove, whereas the active layer of the first laser resonator is not provided in a groove; and

a high-resistance region provided at least along a sidewall of the groove in which the active layer of the second laser resonator is provided, the high-resistance region comprising ions and/or protons implanted into the sidewall of the groove.

Please add the following new claims:

18. (*New*) The semiconductor laser device of claim 1, wherein each of said first and second semiconductor laser resonators is mounted on a heat sink having a concave portion defined in a surface thereof, each of the semiconductor laser resonators being mounted in a junction-down manner on the heat sink so that in each semiconductor laser resonator a cap layer thereof is located between the heat sink and an active layer thereof, and wherein a sidewall of said groove extends upward from the concave portion defined in the surface of the heat sink.

19. (*New*) The semiconductor laser device of claim 16, wherein each of said first and second semiconductor laser resonators is mounted on a heat sink having a concave

portion defined in a surface thereof, each of the semiconductor laser resonators being mounted in a junction-down manner on the heat sink so that in each semiconductor laser resonator a cap layer thereof is located between the heat sink and an active layer thereof, and so that the active layer of each semiconductor laser resonator is located between said substrate and the heat sink, and wherein a sidewall of said groove extends upward from the concave portion defined in the surface of the heat sink.

---

20. (*New*) A semiconductor laser device comprising:

first and second semiconductor laser resonators having different light emitting active layers of materials different from each other, the semiconductor laser resonators being provided on the same substrate so that the light emitting active layers lie substantially in parallel to a main surface of the semiconductor substrate,

an isolating groove defined between the first and second semiconductor laser resonators for electrically isolating the first and second semiconductor laser resonators from one another;

each of said first and second semiconductor laser resonators being mounted on a heat sink having a concave portion defined in a surface thereof, and each of the semiconductor laser resonators being mounted in a junction-down manner on the heat sink so that in each semiconductor laser resonator a cap layer thereof is located between the heat sink and an active layer thereof, and so that the active layer of each semiconductor laser resonator is located between said substrate and the heat sink; and

wherein at least a portion of said isolating groove extends upward from the concave portion defined in the surface of the heat sink.